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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,554	11/26/2003	Russell Gaudiana	15626-006001 / KON-018	9727

26161 7590 06/08/2007

FISH & RICHARDSON PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
TRINH, THANH TRUC	
ART UNIT	**PAPER NUMBER**
1753	

MAIL DATE	DELIVERY MODE
06/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,554	GAUDIANA ET AL.	
	Examiner	Art Unit	
	Thanh-Truc Trinh	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-52* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/5/2004 and 3/15/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 recites the limitation "the mesh" in line 1 lacks positive antecedent support in claim 1. It is suggested that said term be changed to "the mesh electrode".

Claim 48 is recites "the electrically connected photovoltaic cells" in line 2 and 3 lacks antecedent basis.

Claim 48 is also rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether "some of the plurality of photovoltaic cells" or "some of the electrically connected photovoltaic cells" are electrically connected. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-8, 11, 13, 15, 17-34, 37, 39-40, 43-44 and 48-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (US Patent 6291763).

Regarding claim 1, as seen in Figures 2B-D, Nakamura discloses a photovoltaic cell comprising a first electrode (either 8 in Figures 2B-C or 9 in Figure 2D); mesh electrodes (9); an active layer (14) is a dye-sensitized semiconductor layer filled or adhered with electrolyte (charge transport material) and deposited between the electrodes. The semiconductor is the electron acceptor and the dye (or electrically conductive polymer) is the electron donor material. (See col. 29 lines 49-67 and col. 28 lines 51-62)

Regarding claim 2, Nakamura describes the mesh electrode 9 in Figures 2C and 2D) is a cathode.

Regarding claim 3, Nakamura describes the mesh electrode 9 in Figures 2B and 2D is an anode.

Regarding claims 4-8 and 11, Nakamura describes the mesh electrode 9 comprises metal leads (See col. 29 line 50), therefore it comprises wires made of electrically conductive material. It is the Examiner's position that Nakamura's metallic mesh electrode (9) reads on the instant "expanded mesh" because the "expanded" does not impart a distinguishable physical limitation. For example, the metal material, the

thickness, the opening size of the mesh, etc., of the instant expanded metallic mesh electrode can be the same as in Nakamura regardless of whether or not Nakamura's metallic mesh electrode has been subjected to a product-by-process expanding step. In other words, any metallic mesh electrode is essentially the same as the instant expanded metallic mesh electrode in the absence of a recitation of a distinguishing feature. Since Nakamura teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

Regarding claim 13, Nakamura describes the electron acceptor material comprises inorganic nanoparticles. (See col. 5 lines 1-19)

Regarding claim 15, Nakamura discloses polythiophenes, polyphenylenes, polyphenylvinylenes, polythienylvinylenes. (See col. 28 lines 1-30).

Regarding claims 17-20, as seen in Figure 2B-D, Nakamura discloses a transparent conductor layer 12 being placed either between the active layer 14 and the first electrode (either 8 in Figures 2B-C or 9 in Figure 2D) or between the active layer 14 and the mesh electrode 9. The transparent conductor layer 12 reads on the instant hole blocking layer, and comprises metal oxide (See col.5 lines 52-64 and col. 6 lines 22-33).

Regarding claims 21-24, Nakamura discloses a hole carrier (or charge transporting layer) between the active layer and the mesh electrode (See col. 28 lines 51-62), wherein the charge transport material comprises a material selected from polythiophenes, polyphenylenes, polyphenylvinylenes and polythienylenevinylene, polyanilines (See col. 28 lines 1-30).

Regarding claim 25, Nakamura further discloses the first electrode comprising a mesh electrode. (See Figure 2D)

Regarding claims 26-34 and 37, as seen in Figures 2B-2D, Nakamura discloses a photovoltaic cell comprising a first electrode (either 8 in Figures 2B-C or 9 in Figure 2D); a mesh electrode (9) of metal leads (or wires made of electrically conductive material, See col. 29 line 50); an active layer (14) of dye-sensitized semiconductor adhered or filled with charge transport material) between the first and mesh electrodes, wherein the active layer comprising an electron acceptor material (semiconductor) and an electron donor material (dye or electrically conductive polymer, See col. 29 lines 49-67 and col. 28 lines 51-62); a hole blocking layer (12) of metal oxide between the first electrode and the active layer (See col. 5 lines 52-64 and col. 6 lines 22-33); and a hole carrier (charge transporting layer, See col. 28 lines 51-62) layer between the mesh electrode and the active layer. The hole carrier layer comprises material selected from the group consisting of polythiophenes, polyanilines, polyphenylenes, polyphenylvinylenes, polythienylenevinylenes. (See col. 28 lines 1-30). It is the Examiner's position that Nakamura's metallic mesh electrode (9) reads on the instant "expanded mesh" because the "expanded doest not impart a distinguishable physical limitation. For example, the metal material, the thickness, the opening size of the mesh, etc., of the instant expanded metallic mesh electrode can be the same as in Nakamura regardless of whether or not Nakamura's metallic mesh electrode has been subjected to a product-by-process expanding step. In other words, any metallic mesh electrode is essentially the same as the instant expanded metallic mesh electrode in the absence of

a recitation of a distinguishing feature. Since Nakamura teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

Regarding claim 39, Nakamura discloses the first electrode comprises a mesh electrode, or both electrodes are mesh electrodes. (See Figure 2D)

Regarding claim 40, Nakamura discloses a substrate 13 supporting the mesh electrode. (See Figures 2B-D)

Regarding claims 43-44 and 48-49, Nakamura describes the solar cells being connected to each other with a metal lead, flexible wiring. (See col. 30 lines 37-57). Therefore, the reference does teach a photovoltaic system comprising a plurality of photovoltaic cells, either as described in claim 1 or claim 24, wherein at least some or all of the plurality of photovoltaic cells are electrically connected.

2. Claims 1-9, 11-13, 15-24, 26-35, 37-38, 40-44, 47-49 and 52 are rejected under 35 U.S.C. 102(e) as being anticipated by Scher et al. (US Patent 6878871).

Regarding claim 1, as seen in Figure 7, Scher et al. disclose a photovoltaic cell comprising a first electrode (704); a mesh electrode (706); and an active layer (702) between the electrodes, wherein the active layer (702) comprising an electron acceptor material and an electron donor material (nanocrystal and polymer matrix). (See col. 14 lines 22-39 and col. 32 lines 27-57)

Regarding claims 2-3, Scher et al. disclose a mesh electrode 706 as seen in Figure 7. Scher et al. also disclose different ways to form the active layer by either depositing the nanocrystal on the first electrode or the polymer on the first electrode

(See col. 23 lines 8-34). It is the Examiner's position that the mesh electrode can be either a cathode or an anode, depending on the way of depositing what material onto the first electrode first.

Regarding claims 4-9 and 11-12, Scher et al. disclose the mesh electrode can be wires, coated wires or woven wires (col. 31 lines 20-36). The wires comprise conductive material such as metal (See col. 32 lines 27-57). Scher et al. also describes the wires may be coated with a hole blocking layer (See col. 31 line 30), and hole blocking layer is practically an electrical conductive material... (See col. 22 lines 1-43) . It is the Examiner's position that Scher et al.'s metallic mesh electrode 706 reads on the instant "expanded mesh" because the "expanded doest not impart a distinguishable physical limitation. For example, the metal material, the thickness, the opening size of the mesh, etc., of the instant expanded metallic mesh electrode can be the same as in Scher et al. regardless of whether or not Scher et al.'s metallic mesh electrode has been subjected to a product-by-process expanding step. In other words, any metallic mesh electrode is essentially the same as the instant expanded metallic mesh electrode in the absence of a recitation of a distinguishing feature. Since Scher et al. teach the limitations of the instant claims, the reference is deemed to be anticipatory.

Regarding claim 13, Scher et al. disclose the electron acceptor material comprises inorganic nanoparticles, inorganic nanorods. (See col. 16 lines 1-35)

Regarding claims 15-16, Scher et al. disclose material for polymer matrix in the active layer including poly(3-hexylthiophene and polyphenylvinylenes. (See col. 17 lines 31-34)

Regarding claims 17-20, Scher et al. describe a hole blocking layer depositing between the active layer and the electrode (See col. 27 lines 41-49). The hole blocking layer comprises a metal oxide such as TiO_2 and is provided proximal to the nanocrystal layer (See col. 22 lines 1-43). It is the Examiner's position that the hole blocking layer can be either between the mesh electrode and the active layer or between the first electrode and the active layer depending on the way of what being deposited first (as described in claims 2 and 3). If the polymer matrix is deposited first on the first electrode, the hole blocking layer (or electron conductor) is inherently between the mesh electrode and the active layer. And vice versa, if the nanocrystal is deposited on the first electrode first, the hole blocking layer is inherently between the first electrode and the active layer.

Regarding claims 21-24, Scher et al. disclose a hole carrier layer comprising material of polythiophenes, polyphenylenevinylenes, polyaniline. (See col. 22 lines 1-43 and col. 17 lines 31-34). Also, the hole carrier is provided proximal to the polymer matrix. Again, it is the Examiner's position that the hole blocking layer can be either between the mesh electrode and the active layer or between the first electrode and the active layer depending on the way of depositing the polymer and the nanocrystal as described in claims 2 and 3.

Regarding claims 26-35 and 37-38, Scher et al. disclose a photovoltaic cell as seen in Figure 7, comprising a first electrode (704); a mesh electrode (706) can be wires of metal (an electrically conductive material), wires coated with an electrically conductive material, woven mesh (See col. 31 lines 20-36 and col. 32 lines 27-57); an

active layer (702) comprising an electron acceptor material and an electron donor material (nanocrystal and polymer matrix); a hole blocking layer between the first electrode and the active layer, wherein the hole blocking layer comprises metal oxides such as TiO2 (See col. 22 lines 1-43 and col. 27 lines 41-49); a hole carrier between the mesh electrode and the active layer, wherein the hole carrier comprises material selected from the group consisting of polythiophenes, polyphenylenevinylenes, polyaniline. (See col. 22 lines 1-43 and col. 17 lines 31-34).

Regarding claim 40, Scher et al. disclose a substrate 710 supporting the mesh electrode. (Figure 7)

Regarding claim 41, Scher et al. describe depositing PEDOT:PSS onto the substrate before depositing nanocrystal blend solution with one ingredient is a hole carrier material. (See Examples 1 and 2). Therefore, it is the position of the Examiner that PEDOT:PSS is an adhesive material and being deposited between the substrate and the hole carrier.

Regarding claim 42, as seen in Figure 7, Scher et al. disclose the active layer is in contact with the substrate through opening 708. In addition, the active layer contains hole carrier (See col. 17 lines 39-50). Therefore, the hole carrier is in contact with the substrate through opening 708.

Regarding claims 43-44 and 48-49, Scher et al. describes the photovoltaic cells can be connected to each other electrically. (See col. 4 lines 25-48).

Regarding claims 47 and 52, Scher et al. disclose a load (1014, 1114, 1214) connected to the photovoltaic cell as seen in Figures 10, 11 or 12. In addition, the load

must be connected the photovoltaic cells to complete the circuit, or make use of the power output from the photovoltaic cells. Also, it is the Examiner's position that the load electrically connected to the photovoltaic system either in parallel or series depends on the desired input to the load and output from the photovoltaic system, either a large current or a large voltage.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 9-10 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Patent 6291763) in view of Griffin et al (US Patent 3442007).

Regarding claims 9-10 and 35-36, Nakamura discloses a photovoltaic cell as described in claims 6 or 32.

Nakamura does not teach that the wires comprise a coating including an electrically conductive material.

Griffin et al. teach that the mesh wires comprises a coating including an electrically conductive material such as gold, copper or nickel. (See col. 2 lines 63-72).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the photovoltaic cells of Nakamura by using coated wires as taught by Griffin et al., because it would provide an effective adhesion and a good power efficiency. (See col. 2 lines 62-70 bridging col. 3 lines 1-4).

4. Claims 12 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Patent 6291763) in view of Scher et al. (US Patent 6559375).

Regarding claim 12, Nakamura discloses a photovoltaic cell with a mesh electrode as described in claims 1 or claim 26.

Nakamura does not explicitly describe the mesh electrode comprises a woven mesh.

Scher et al. teach woven electrodes. (See col. 31 lines 20-36)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the mesh electrode of Nakamura by using woven mesh electrode as taught by Scher et al., because it would give an alternative architecture of the electrode. (See col. 30 lines 63-67 bridging col. 31 lines 1-36).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Patent 6291763) in view of Meissner et al. (US Patent 6559375)

Regarding claims 14 and 16, Nakamura discloses a photovoltaic cell as described in claim 1.

Nakamura does not teach that the electron acceptor material comprises a substituted fullerene, nor the electron donor material comprises poly(3-hexylthiophene).

Meissner et al. teach using substituted fullerene. (See col. 3 lines 3-19 and claim 16)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the photovoltaic cell of Nakamura by using substituted fullerene as electron acceptor material as taught by Meissner et al., because it would increase the charge transport and thereby increasing the efficiency of the photovoltaic cells. (See col. 3 lines 3-19 of Meissner et al.)

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Patent 6291763) in view of Scher et al. (US Patent 6878872)

Regarding claim 16, Nakamura discloses a photovoltaic cell as described in claim 1.

Nakamura does not teach that the electron donor material comprises poly(3-hexylthiophene).

Scher et al. teach using poly (3-hexylthiophene) as the electron donor. (See col. 7 lines 31-34 and col. 22 lines 33-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the photovoltaic cell of Nakamura by using the electron donor comprises poly (3-hexylthiophene) as taught by Scher et al., because it would be useful as the supporting and conductive for the active layer. (See col. 17 lines 25-27).

7. Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Patent 6291763) in view of Scher et al. (US Patent 6878872)

Regarding claims 41-42, Nakamura discloses a photovoltaic cell as described in claim 1.

Nakamura does not teach an adhesive material between the substrate and the hole carrier, nor the hole carrier is in contact with the substrate.

Scher et al. teach depositing PEDOT:PSS onto the substrate before depositing the active layer with hole carrier material. Therefore, PEDOT:PSS is considered as an adhesive material between the substrate and the carrier. (See Examples 1 and 2)

Scher et al. also teach that the active layer (702) containing a hole carrier material is in contact with the substrate through hole (708). (See Figure 7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the module of Nakamura by utilizing an adhesive material between the substrate and the hole carrier material, because it would improve the adhesion between layers.

It would certainly have been obvious to one having ordinary skill in the art at the time the invention was made to have the hole carrier being in contact with the substrate, because it would reduce the traveling distance for the hole.

8. Claims 45-47 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Patent 6291763) in view of Chapin et al. (US Patent 2780765).

Regarding claims 45-47 and 50-52, Nakamura discloses a photovoltaic system as described in claims 43 and 48.

Nakamura does not explicitly teach connecting the photovoltaic cells in series, nor in parallel.

Chapin et al. teach connecting the photovoltaic cells in series and parallel. (See col. 4 lines 45-74)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to connect the photovoltaic cells of Nakamura in either series or parallel as taught by Chapin et al., because it would give a large voltage if a plurality of photovoltaic cells connecting in series, and a large current if connecting in parallel. (See col. 4 lines 48-50).

It would certainly have been obvious to one having ordinary skill in the art at the time the invention was made to connect the photovoltaic system parallel to the load, because it would give a large input current to the load.

9. Claims 10 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher et al. (US Patent 6878871) in view of Griffin et al (US Patent 3442007).

Regarding claims 10 and 36, Scher et al. disclose a photovoltaic cell, wherein a mesh electrode comprises wires with coating of electrically conductive material as described in claims 9 and 35.

Scher et al. do not explicitly teach that the electrically conductive material of the coating consisting metals, alloys, polymers and combinations thereof.

Griffin et al. teach that the mesh wires comprises a coating including an electrically conductive material such as gold, copper or nickel. (See col. 2 lines 63-72).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the photovoltaic cell of Scher et al. by using coated wires as taught by Griffin et al., because it would provide an effective adhesion and a good power efficiency. (See col. 2 lines 62-70 bridging col. 3 lines 1-4).

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scher et al. (US Patent 6878871) in view of Meissner et al. (US Patent 6559375)

Regarding claim 14, Scher et al. disclose a photovoltaic cell as described in claim 1.

Scher et al. do not teach that the electron acceptor material comprises a substituted fullerene.

Meissner et al. teach using substituted fullerene. (See col. 3 lines 3-19 and claim 16)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the photovoltaic cell of Scher et al. by using substituted fullerene as electron acceptor material as taught by Meissner et al., because it would increase the charge transport and thereby increasing the efficiency of the photovoltaic cells. (See col. 3 lines 3-19 of Meissner et al.)

11. Claims 25 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher et al. (US Patent 6878871) in view of Nakamura (US Patent 6291763)

Regarding claims 25 and 39, Scher et al. disclose a photovoltaic cell as described in claims 1 or 26.

Scher et al. do not teach the first electrode being a mesh electrode.

Nakamura teaches the first electrode being a mesh electrode. (See Figure 2D).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the module of Scher et al. by having the first electrode as a mesh electrode as taught be Nakamura, because it would provide a more efficiency by decreasing the resistance of the substrate. (See col. 6 lines 22-33)

12. Claims 45-46 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher et al. (US Patent 6878871) in view of Chapin et al. (US Patent 2780765).

Regarding claims 45-46 and 50-51, Scher et al. disclose a photovoltaic system as described in claims 43 and 48.

Scher et al. do not explicitly teach connecting the photovoltaic cells in series, nor in parallel.

Chapin et al. teach connecting the photovoltaic cells in series and parallel. (See col. 4 lines 45-74)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to connect the photovoltaic cells of Scher et al. in either series or parallel as taught by Chapin et al., because it would give a large voltage if a plurality of photovoltaic cells connecting in series, and a large current if connecting in parallel. (See col. 4 lines 48-50)

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-2, 4-8, 11 and 25 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 7, 9, 30, 35 of U.S. Patent No. 7022910. Although the conflicting claims are not identical, they are not patentably distinct from each other because the structure and the material of making are essentially the same between said patent and the instant claims.

14. Claims 1-7 and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18 and 19 of copending Application No. 11/033217. Although the conflicting claims are not identical, they are not patentably distinct from each other because the structures and the material of making are essentially the same.

This is a provisional obviousness-type double patenting rejection.

15. Claims 1-13, 15-25 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 7, 9, 30, 35 of U.S. Patent No. 7022910 in view of Scher et al. (US Patent 6878871). The subject matters of the claims of U.S. Patent 7022910 are substantially the same as that of the instant claims, except for the manner in which poly (3-hexylthiophene) is used for electron donor, woven and coated wires for mesh electrode, metal oxides for hole blocking layer and certain polymers for the hole carrier. It would have been obvious to one having ordinary skill in the art to modify the module of claims 1, 4, 7, 9, 30, 35 of US Patent 7022910 by

utilizing the materials as taught Scher et al., because it would provide a desired overall device property. (See col. 4 lines 56-58)

16. Claims 1-13, 15-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 18 and 19 of copending Application No. 11/033217 in view of Scher et al (US Patent 6878871). The subject matters of the claims of copending Application No. 11/033217 are substantially the same as that of the instant claims, except for the manner in which poly (3-hexylthiophene) is used for electron donor, woven and coated wires for mesh electrode, metal oxides for hole blocking layer and certain polymers for the hole carrier. It would have been obvious to one having ordinary skill in the art to modify the module of claims 1, 18 and 19 of copending Application No. 11/033217 by utilizing the materials as taught Scher et al., because it would provide a desired overall device property. (See col. 4 lines 56-58)

This is a provisional obviousness-type double patenting rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh-Truc Trinh whose telephone number is 571-272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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